



IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

**Patent Application**

**Inventors(s):** George Earl Peterson      **Case:** 18  
**Serial No.:** 09/915,963      **Filing Date:** July 26, 2001  
**Examiner:** Shih Chao Chen      **Group Art Unit:** 2821  
**Title:** Broadband Polling Structure

**THE COMMISSIONER OF PATENTS AND TRADEMARKS**  
**ARLINGTON, VA 22313-1450**

**SIR:**

Enclosed is a **Reply Brief** (in triplicate) to the Board of Patent Appeals and Interferences.

NO FEE IS REQUIRED.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit my **VISA** as required to correct the error. (Form 2038 is not attached but will be supplied if necessary.)

Respectfully,

Michael J. Urbano  
Attorney for Applicant(s)  
Reg. No. 24, 522  
610-691-7710

Date: 12/27/07

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Date of Deposit 12/27/07

I hereby certify that this application is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37CFR1.10 on the date indicated above and is addressed to the Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450  
Michael J. Urbano:



*Peterson 18*  
*Serial No. 09/915,963*

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**THE COMMISSIONER OF PATENTS AND TRADEMARKS  
WASHINGTON, DC 20231**

**SIR:**

**REPLY BRIEF UNDER 37 CFR § 41.41**

**I. Examiner's Answer**

On November 1, 2007 an Examiner's Answer was filed in the above-captioned appeal.

**II. Issues Raised**

Issue A and Issue B are discussed in Applicant's Brief. To avoid confusion the additional issues raised by the Examiner's Answer are listed below as Issue C, Issue D, and Issue E; to wit,

Issue C: Whether the Examiner's admission that the Wicks antenna element is a *slow wave* antenna structure supports Applicant's arguments of patentability.

Issue D: Whether the failure of Wicks to describe how to broaden beam directivity supports Applicant's arguments of patentability.

Issue E: Whether the language "supporting a phase velocity greater than the speed of light" of Applicant's independent claims 1, 11 and 25 constitutes a "limitation in any patentable sense."

### III. Discussion of Issues Raised

**Issue C:** Regarding the fast/slow wave nature of antenna elements, Applicant has consistently pointed out that Wicks teaches an antenna element having a slow wave structure [e.g., a TEM slot line; BRIEF, B(4), p. 7], whereas Kraus teaches one waveguide design having a fast wave structure (as well as a different design having a slow wave structure). Applicant's independent claims 1, 11 and 21 all require, *inter alia*, that the antenna element supports a phase velocity greater than the speed of light, which, as is well known in the art, means that Applicant's antenna element is a fast wave structure. Accordingly, Applicant has argued that one of ordinary skill in the art would not be motivated to substitute Kraus' fast wave structure for Wicks' slow wave structure. Now, *for the first time*, the Examiner has agreed that Wicks teaches a slow wave structure [ANSWER, p. 7, lines 6-8; p. 8, lines 4-7; page 9, lines 6-9; p. 10, line 12 (where "slow" has been misspelled "slot")]. It is respectfully submitted that the Examiner's agreement strengthens Applicant's argument that the combination of references do not suggest to one of ordinary skill in the art to substitute Kraus' fast wave waveguide structure for the Wicks/Ogot slow wave antenna structure.

**Issue D:** Regarding antenna directivity, Applicant teaches both the standard meaning of the term [p.2, lines 4-11] and the nexus between directivity and the phase velocity supported by an antenna element [p. 2, lines 24 *et seq.*]. Directivity is particularly important, for example, in broadband radio frequency identification polling systems [SPECIFICATION, p. 2, lines 12-19, and elsewhere]. Directivity, however, is not equivalent to simple beamwidth. In the Final Rejection, the Examiner asserted that Kraus suggests the use of a "traveling wave antenna (Surface-wave antenna) *to widen the directivity of the antenna structure,*" but in fact Kraus is silent on the issue of widening directivity [BRIEF, B(5), p. 7]. The Examiner has withdrawn that argument based on Kraus. Instead, *for the first time*, the Examiner asserts that Wicks describes a "slow wave antenna...to widen directivity of the antenna (i.e. Vertical Beamwidth: 19 degrees & Horizontal Beamwidth: 50 degrees; See col. 4, lines 27-28)" [ANSWER, p. 7, lines 6-10, and elsewhere] However, Wicks is totally devoid of any description of directivity, either functionally or quantitatively. The recitation of a single set of beamwidth dimensions

does not constitute a teaching of directivity. In addition, there is no suggestion in the references that such beamwidth data would motivate one of ordinary skill to *substitute* Kraus' fast wave waveguide structure into Wicks' slow wave antenna structure [cf., Claims 1-25], or motivate one of ordinary skill to *add* Kraus' fast wave waveguide structure to Wick's slow wave antenna structure [cf., Claim 20].

**Issue E:** With respect to independent Claims 1, 11 and 21, the Examiner asserts "a traveling wave antenna '**supporting**' to perform a given function (i.e. a phase velocity greater than the speed of light) is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense." [emphasis in original; ANSWER, p. 7, lines 10-13, and elsewhere.] First, the Examiner did not raise this issue in the final rejection of November 11, 2006. Consequently, it is respectfully submitted that this issue has not been raised in a timely fashion and, therefore, is not properly before the Board. Second, the Examiner previously raised this issue as part of his Section 112 rejection in the previous appeal in this case [PREVIOUS ANSWER, p. 7, lines 14-16; APPEAL No. 2005-2760]. The Board *reversed* the Section 112 rejection. Third, assuming, *arguendo*, that the issue is properly before the Board, it is respectfully submitted that (i) the Examiner's position is not supported by case law or rule; (ii) the Examiner has cited no case law or rule to the contrary; and (iii) this type of language has been *frequently* sanctioned by the Commissioner. A search of recently issued patents directed to a variety of electromagnetic devices reveals many claims that include very similar language.

The following patent claims are illustrative:

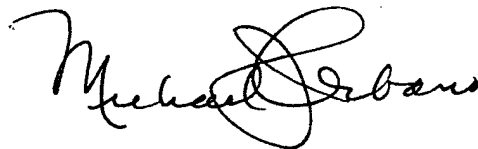
PATENT (Issue Date).	DEVICE	CLAIM	CLAIM LANGUAGE
6,333,944	laser	1	cavity resonator capable of <i>supporting</i> lasing modes
6,891,864	laser	6	micro resonator <i>supporting</i> whispering gallery modes
7,148,842	delay line	1	waveguide <i>supporting</i> propagation of electromagnetic guided waves
7,254,286	sensor	1	at least one waveguide structure <i>supporting</i> at least one TM-polarized waveguide mode
7,280,567	laser	18	means of ... <i>supporting</i> propagation of single transverse mode
7,294,454	waveguide	1	widened...region...profile capable of <i>supporting</i> a fundamental mode

#### XI. Conclusion

In summary, for the reasons set forth in Applicant's Brief and this Reply Brief, it is respectfully submitted that Claims 1, 5-11, 15-21 and 23-25 are not rendered obvious by the proposed combination of Wicks, Ogot and Kraus.

Accordingly, reversal of the final rejection is in order.

Respectfully,  
George Earl Peterson



By \_\_\_\_\_

Michael J. Urbano  
Attorney for Applicant  
Reg. No. 24,522  
610-691-7710

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